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09/456,371	12/08/1999	HEINRICH BOLLMANN	12010	6395

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EXAMINER

CHANG, VICTOR S

ART UNIT PAPER NUMBER

1771

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/456,371
Filing Date: December 08, 1999
Appellant(s): BOLLMANN ET AL.

Kristopher Hulliberger
For Appellant

EXAMINER'S ANSWER

MAILED
APR 05 2005
GROUP 1700

This is in response to the appeal brief filed 12/27/2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of the Claimed Subject Matter*

The summary of invention contained in the brief is correct.

(6) *Grounds of Rejection to be Reviewed on Appeal*

The appellant's statement of the issues in the brief is correct.

(7) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) *Prior Art of Record*

5,288,442	Bauvois	2-1994
5,288,549	Zeitler et al.	2-1994

(9) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 19, 20, 22, 23 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauvois (US 5288442), and evidenced by Zeitler (US 5288549) for claim 30.

Bauvois' invention describes a process for the manufacture of a complex molded structure such as a ski (column 1, line 10). The complex molded structure generally comprises stiffening or reinforcing elements being in the form of wires, plates, etc., and/or various mechanical elements such as damping elements (i.e., shock absorbers), etc. (column 1, lines 7-20). In Figs. 1 and 2, Bauvois shows that a ski is formed by first placing a flexible and deformable shell of a mixture of polyurethane and a polyetheramide block copolymer in a mould, then a polymerizable mixture of polyol and an isocyanate are injected to form a polyurethane foam. The resulting polyurethane foam expands *in situ* and forms a final molded structure (column 3, line 50 to column 4, line 29). Suitable polymers for the flexible and deformable element chosen from thermoplastic polyurethanes (TPU), polyetheramide block copolymers, etc. (column 2, lines 63-68).

For claim 19, Bauvois is silent about the thickness of the thermoplastic shell, the cell size of the PU foam, and the foam is chemically bonded to the TPU shell. However, since Bauvois teaches substantially the same subject matter (a shock absorber having a TPU shell and an injection molded polyurethane (PU) foam core for damping applications), in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art of damping elements to optimize and/or select a suitable shell thickness and foam cell size, motivated by the desire to obtain required mechanical

strength, durability, damping properties. Finally, regarding the recitation that the foam is chemically bonded to the TPU shell, the Examiner notes that, in the absence of evidence to the contrary, since Bauvois teaches the same TPU shell, and the same polymerizable mixture of polyol and an isocyanate for forming a polyurethane foam, it is the Examiner's position that a chemical bonding between the resulting PU foam and TPU shell is anticipated, or obviously provided once the product is formed.

For claim 20, Bauvois is silent about the density and mechanical properties of the PU foam. However, the Examiner repeats that since Bauvois teaches substantially the same subject matter (a shock absorber having a TPU shell and an injection molded polyurethane (PU) foam core for damping applications), in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art of damping elements to optimize and/or select a suitable foam density and its mechanical properties, motivated by the desire to obtain required mechanical strength, durability, damping properties.

For claim 22, Bauvois shows that the PU foam is formed inside a shell.

For claim 23, Bauvois expressly teaches that the complex molded structure generally comprises stiffening or reinforcing elements being in the form of wires, plates, etc., as set forth above, as such, clearly Bauvois' teaching encompasses forming foam layer on the outer surface of the stiffening elements as well.

For claim 30, Bauvois is silent about the ratio of the isocyanate groups to isocyanate reactive groups. However, the Examiner repeats that it is known art that a suitable ratio is required for forming a TPU elastomer of desired rigidity, as evidenced

by the reference of Zeitler et al. (US 5,288,549, which was previously cited in Office action dated 1/7/2004 as evidentiary support), in which Zeitler expressly teaches that a TPU elastomer prepared by having a ratio of isocyanate groups to isocyanate reactive groups in a range from 0.85:1 to 1.1:1 provides rigidity technically required for base layers in a composite element (column 3, lines 15-23). As such, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art of TPU elastomer to optimize and/or select a TPU formed from a suitable ratio of isocyanate groups to isocyanate reactive groups, motivated by the desire to form a stiffening and reinforcing element, such as Bauvois' ski shell, with a desired rigidity for a damping element.

(10) Response to Argument

With respect to Appellants' argument "Bauvois is silent as to the type of foam core" (Brief, page 4, middle paragraph), the Examiner repeats that Bauvois expressly teaches that a polymerizable mixture of polyol and an isocyanate are injected into the mould space form a polyurethane foam, as set forth above. Appellants' argument to the contrary notwithstanding.

Appellants' argument "Both TPU moldings or microcellular polyurethane elastomers are known individually and have been used in various applications. However, Applicants are claiming to have been the first to combine these into a composite damping element in motor vehicle construction to be received in and to dampen and absorb vibrations of the transverse link ... or shock-absorber" (Brief, page 5, first paragraph) has been carefully considered, but is not persuasive. First, the

Examiner notes that "a composite damping element in motor vehicle construction" is not recited in any claims. Second, since the preamble in independent claim 19 broadly recites "A composite damping element in ... a shock-absorber ...", clearly the damping element taught by Bauvois, a ski, is inherently a shock-absorbing damping element, and reads on the instant invention as claimed, Appellants' argument to the contrary notwithstanding.

With respect to Appellants' argument "One skilled in the art of rubber-metal composites for motor vehicle running gears would not look to complex molded articles ... to replace the metal composites with the two layer composite damping element of the subject invention ... generally known as rubber-metal composites widely used in running gears of road vehicles" (Brief, page 7, top paragraph), the Examiner repeats that Appellants' argument appears to be misplaced. Specifically, it should be noted "composites for motor vehicle running gears" is not recited in any claims.

With respect to Appellants' argument "Bauvois states that the complex molded article is traditionally meant to be molded structure comprising stiffening or reinforcing elements in the form of wires or in the form of cloths, or even in the form of plates, protection elements, and/or various mechanical elements such as, damping elements ... Such a disclosure does not lead one skilled in the art to the claimed composite damping element to be received in transverse link ... or the shock-absorber. More specifically, such a disclosure does not suggest to one skilled in the art to replace composite elements based on metals and rubber" (Brief, page 9, second full paragraph), the Examiner repeats that the Bauvois' teachings renders obvious the

instant invention as claimed, i.e., a shock absorber having a TPU shell and an injection molded polyurethane (PU) foam core for damping applications, Appellant's argument to the contrary notwithstanding. In particular, the Examiner repeats that the broad recitation in independent claim 19 fails to preclude the teachings of Bauvois.

With respect to Appellants' argument "Bauvois does not teach or suggest the claim limitation of the composite damping element received in the transverse link ... or the shock-absorber ... The subject invention does not include additional stiffening or reinforcing elements as taught by Bauvois" (Brief, page 10 second paragraph), the Examiner repeats that Bauvois' teachings do read on the instant invention as claimed, as set forth above, and the fact that it discloses additional structure not claimed is irrelevant. Further, it should be noted that Bauvois' TPU shell reads on the thermoplastic polyurethane molding as claimed.

With respect to Appellants' argument "Bauvois does not teach or suggest the claim limitation of chemically bonding the microcellular polyurethane elastomer layer (ii) to the thermoplastic polyurethane molding (i) to produce the composite damping element ... On the other hand, Bauvois discloses using resin impregnated cloths to create the adhesion between the foam core 16 and the polyurethane shell 13 ... There is no disclosure of the foam core 16 chemically bonding with polyurethane shell 13 ..." (Brief, page 10, bottom paragraph), the Examiner notes that in Fig. 2, Bauvois expressly shows that the polyurethane shell 13 is in direct contact with PU foam core, Appellants' argument to the contrary notwithstanding. Again, it should be noted that while Bauvois discloses additional structure not claimed, it is irrelevant to the patentability of instant

invention as claimed. Further, as set forth above, the Examiner repeats that in the absence of evidence to the contrary, since Bauvois teaches the same TPU shell, and the same polymerizable mixture of polyol and an isocyanate for forming a polyurethane foam, it is the Examiner's position that a chemical bonding between the resulting PU foam and TPU shell is anticipated, or obviously provided once the product is formed.

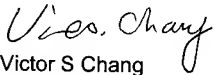
With respect to Applicants' argument "Bauvois is silent about the foam core 16 having excess isocyanate groups for bonding with the polyurethane shell 13 ..." (Brief, page 11, second full paragraph), the Examiner notes that Appellants appear to be

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confused about the recitation in dependent claim 16. It should be noted that claim 16 recites an excess amount of isocyanate groups for the thermoplastic polyurethane molding, not for the foam core. Clearly, Appellants' argument is misplaced.

For the above reasons, it is believed that the rejections should be sustained.


Respectfully submitted,



Victor S Chang
Examiner
Art Unit 1771

March 31, 2005

Conferees
Terrel Morris - *FM*
Rena Dye - *RD*



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